

AW Math 11

Name: _____

DAY 1 *Pythagorean Theorem class notes*

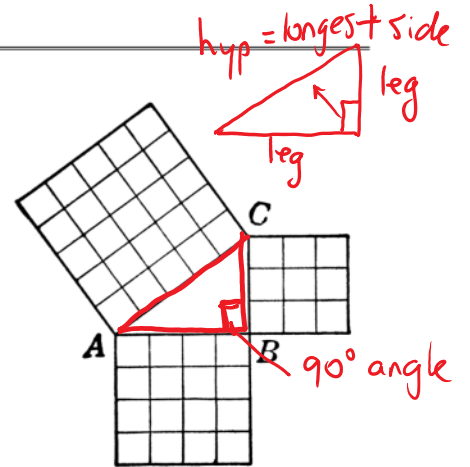
Right Triangle

- 90° angle
- must exist to use pythagorus

Pythagorean Relationship

$$a^2 + b^2 = c^2$$

C=hyp a,b = legs

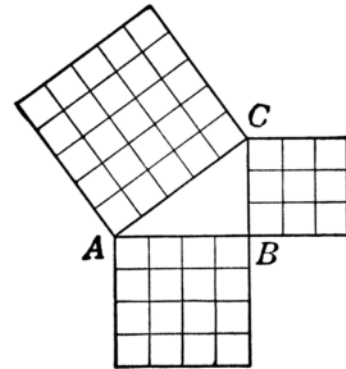


HOW TO Find the Hypotenuse of a Right Triangle

	<p>Example:</p>
1. Identify the hypotenuse	<p>z</p> <ul style="list-style-type: none"> • across from 90° • longest side
2. Write Pythagorean Relationship	$a^2 + b^2 = c^2$
3. Insert the lengths of the triangle	$8^2 + 10^2 = c^2$
4. Square the lengths	$64 + 100 = c^2$
5. Add the squares	$164 = c^2$
6. Find the square root	$\sqrt{164} = 12.8$
7. Write your answer	$z = 12.8 \text{ cm}$

DAY 1 *Pythagoras' Theorem class notes*

The Modified Pythagorean Relationship:



HOW TO Find the Leg of a Right Triangle

	<p>Example:</p>
1. Identify the hypotenuse	$x = 17\text{ m}$
2. Write correct equation (do you have a known hypotenuse?)	$c^2 - b^2 = a^2$
3. Sub in 2 length values...	$17^2 - 11^2 = w^2$
4. Square the values...	$289 - 121 = w^2$
5. Solve for the unknown square	$168 = w^2$
6. Find the square root	$\sqrt{168} = w \quad w = 12.9\text{ m}$
7. Does your answer make sense??	Yes, 12.9 less than hyp

Don't do # 2, 8

Pg 4-6

DAY 1 *Pythagorean Theorem assignment*

Multiple Choice

1. In order to use the Pythagorean theorem, what must be true about a given triangle?
- a) The triangle must be a right triangle, with one angle being 90° .
 - b) The sum of the interior angles of the triangle must add to 180° .
 - c) The triangle must be an acute triangle, with one angle being 45° .
 - d) The triangle must be an obtuse triangle, with one angle being 135° .

~~2.~~ Check for Pythagorean triples:

a) 9, 11, 17

b) 7, 24, 25

3. A carpet has side lengths of 3.2 m and 4.6 m. What is the distance between opposite corners of the carpet? Draw diagram, add hypotenuse, and solve.

a) 3.3 m

b) 2.8 m

c) 5.6 m

d) 7.9 m

4. TV screen sizes are indicated by the distance between opposite corners. A TV has sides that are 32 in high and 43 in wide. What is the size of the TV? Draw diagram and solve.

a) 29 in

b) 59 in

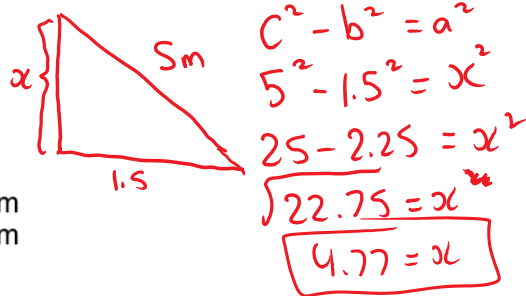
c) 59 in

d) 54 in

5. A park is 45 m long by 30 m wide. When travelling between opposite corners, how much shorter is it to walk diagonally across the park instead of walking along its sides?
- Draw diagram.
 - How long traveling on the edges of the field (2 sides).
 - How far across the field? Find the diagonal.
 - Subtract to answer the question.

- | | |
|---------|---------|
| a) 26 m | c) 51 m |
| b) 54 m | d) 21 m |

6. A ladder is 5 m long. If it is leaning against a wall, with the bottom of the ladder 1.5 m away from the base of the wall, how high up the wall will it reach? Draw and solve below.



- | | |
|-----------|------------------|
| a) 5.7 m | c) 3.67 m |
| b) 5.22 m | d) 4.77 m |

7. Each side of a square is 10 cm long. What is the length of the diagonal of the square? Draw and solve.

- | | |
|-------------|-------------|
| a) 14.14 cm | c) 17.14 cm |
| b) 18.54 cm | d) 20.14 cm |

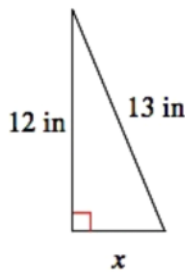
~~X~~ A rectangle has a length of 12 cm and an area of 120 cm^2 . Work backwards from the area to find the missing side length. Find the length of the diagonal of the rectangle.

- a) 17.62 cm c) 120.60 cm
 b) 15.62 cm d) 119.40 cm

Short Answer

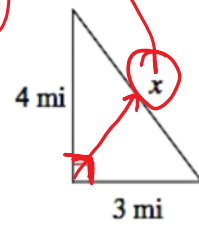
Find the missing side of each right triangle. Show your calculations.

1)

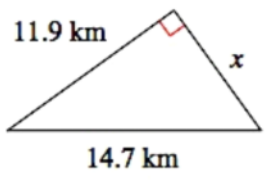


$a^2 + b^2 = c^2$
 $4^2 + 3^2 = x^2$
 $16 + 9 = x^2$
 $25 = x^2$
 $\sqrt{25} = x = 5$

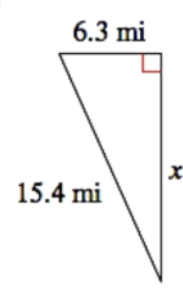
(2)



3)



4)



X 7, 9, 11
 , ,
 $49 + 81$
 130

$11^2 = 121$